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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking to Implement the Commission's Procurement Incentive Framework and to Examine the Integration of Greenhouse Gas Emissions Standards into Procurement Policies.	)))))	Rulemaking 06-04-009 (Filed April 13, 2006)

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In The Matter Of, AB 32 Implementation – Greenhouse Gas Emissions.	)))))	Docket 07-OIIP-01

RESPONSE OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) TO ADMINISTRATIVE LAW JUDGE'S COMMENTS AND LEGAL BRIEFS ON MARKET ADVISORY COMMITTEE REPORT

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Dated: **August 6, 2007**

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Pursuant to the Administrative Law Judge's Ruling Requesting Comments and Legal Briefing on Market Advisory Committee Report and Notice of En Banc Hearing, issued July 19, 2007 ("Ruling"), Southern California Edison Company ("SCE") submits the following responses to the questions posed by the Ruling. SCE appreciates the willingness of the California Public Utilities Commission ("CPUC") to consider the deliverer/first seller ("First Seller") approach set forth by the California Market Advisory Committee's *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*. SCE looks forward to engaging the CPUC and other parties on the merits of this approach as opposed to a load-based system. As the CPUC will find in reviewing SCE's responses on questions regarding general policy, implementation, and legal issues associated with the First Seller approach, this approach is in many ways preferable to a load-based approach. However, SCE recognizes that both approaches are novel and legally untested. It therefore urges the CPUC to consider carefully the risks and benefits of each option.

A. Responses to General Questions

1. Is the above description of this deliverer/first-seller approach accurate? Comment on whether you agree with this description, and if not, explain how the first-seller approach should be described differently and why?

SCE generally agrees with the description of the First Seller approach described in Section 3.A of the Ruling. However, Section 3.A requires some clarification. In that section, the first seller of power imported into California is currently defined as, "the entity that first delivers electricity at a point of delivery within California." In certain cases, a California Balancing Authority may control a small portion of transmission that is physically located outside of the state and thus have a delivery point outside of the state. For simplicity and accuracy, the "point of delivery within California" should be defined as the first delivery point for which the Balancing Authority[1] is a California entity.[2]

SCE recommends that the definition in Section 3.A of the Ruling be modified as follows:

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[1] Currently, there are eight Balancing Authorities either contained within or having a portion of their control area within California. They are: California Independent System Operator ("CAISO"), Los Angeles Department of Water and Power, Imperial Irrigation District, Sacramento Municipal Utility District, Turlock Irrigation District, PacifiCorp, Sierra Pacific Power Company, and Western Area Power Authority—Lower Colorado River.

[2] It is possible that there will be some practical impediments to this approach and as such, SCE recommends that a technical working group be convened to identify the capability of E-Tags or other data to identify the importing of power into California.

(b) for imported power, the first seller is the entity that first delivers electricity at a point of delivery within a California Balancing Authority (also commonly referred to as a "control area").

2. For imports, who has ownership of electricity when it enters California? Is the "Purchasing/Selling Entity" (on the North American Electric Reliability Corporation (NERC) E-tag) listed at the first Point of Delivery in California the deliverer/first-seller? If this is generally the case, are there any exceptions?

SCE notes that the current purpose of the North American Electric Reliability Council ("NERC") E-Tag is to maintain grid reliability and not to determine who has legal title to electricity at each point in a commercial transaction. However, the E-Tag identifies the Purchasing/Selling Entity ("PSE") as the entity responsible for the power at a particular point or portion of the physical scheduling path. This responsibility is analogous to "ownership," especially since electricity is an instantaneous commodity and the "transfer of title" during a series of commercial transactions happens instantaneously. For this reason, SCE suggests that the PSE identified in the E-Tag at a particular point should be deemed the "owner" of the electricity at such point for purposes of establishing GHG responsibility. Thus, the PSE listed on the E-Tag at the first point of delivery for electricity imported into a California Balancing Authority would be deemed to have ownership of the imported electricity. SCE is not aware of, nor is it proposing, any exceptions to this proposition.

SCE understands that each entity identified as the PSE on the E-Tag receives a copy of the E-Tag. Although the E-Tag process currently may not have a well-defined dispute resolution mechanism that would allow PSEs to dispute being tagged as the first seller (*e.g.,* due to an error), the California Air Resources Board ("CARB") can easily institute a dispute resolution process for the purpose of implementing Assembly Bill ("AB") 32.

Two other complications that arise infrequently in connection with the use of E-Tags can be resolved administratively upfront. First, some E-Tags for imports into California may not list a California Balancing Authority in the scheduling entities column. In these rare cases, an evaluator would need to look to the control area column of the E-Tag to determine the point at which the transaction enters into a California Balancing Authority. This row of data will have an associated PSE and that entity would be the First Seller for greenhouse gas ("GHG") purposes. Second, in some transactions (known as "wheel-throughs") electricity enters and leaves California. In these transactions the energy is neither produced nor consumed in California. Therefore, the GHG emissions associated with wheel-through transactions should not be attributed to California. However, it is also possible for electricity to enter, leave, and then re-enter California, all on the same E-Tag. This type of transaction can be easily administered. In that case, the First Seller would be identified as the PSE associated with the last entry, instead of the first entry, relative to the electricity's entrance into a California Balancing Authority.

3. <u>Are there any inter-balancing Authority imports not accounted for by E-tags? If so, describe these instances and explain how these imports can be accounted for.</u>

To SCE's knowledge, all inter-balancing Authority imports are accounted for by E-Tags.

4. <u>What agency could/would identify importing contractual parties? Is there already a state or federal official compilation of these market participants?</u>

SCE is not aware of any agency that currently could identify the contractual counterparties involved in energy import transactions, nor is SCE aware of any current state or federal compilation of such market participants. However, NERC E-Tags capture each electricity transaction in which electricity crosses a Balancing Authority. Each E-Tag is submitted to the relevant Balancing Authorities for approval, as well as to the Western Electricity Coordination Council ("WECC") for all transactions between Balancing Authorities that are WECC members. CARB can obtain E-Tag information from WECC or from the individual California Balancing Authorities, if they also maintain such databases.

5. <u>Could the deliverer/first-seller be identified by means other than the NERC E-tag? If so, please explain.</u>

It may be possible to identify the First Seller from energy schedules information retained by each Balancing Authority for all transactions between Balancing Authorities. The CPUC should explore this option with California Balancing Authorities.

6. <u>How would a deliverer/first-seller system deal with power marketers and brokers?</u>

For imported power under the First Seller approach, a power marketer or broker would be treated the same as any other entity identified as the PSE responsible for a transaction at the first point of contact with a California Balancing Authority. To the extent that a marketer or broker is the First Seller of an import, as identified by an E-Tag, that entity would then be responsible for the GHG associated with such transaction.

For transactions involving in-state California generation, the marketer or broker is irrelevant for GHG purposes because the generator producing the power would be responsible for the GHG emissions under a First Seller approach. Any further change in ownership of the energy after the source generator is not relevant for GHG reporting purposes under a First Seller system. It is worth noting that the implementation of a GHG cap-and-trade program can have an impact on marketer and broker activities. This impact is much more significant under a load-based approach. Simply put, the issue is that brokered exchanges match buyers and sellers blindly based upon limited criteria (those criteria include authorized counterparties, quantities, and prices). The purchaser of power in the brokered transaction is not aware of the counterparty's identity nor the resource/GHG profile associated with the power. Typically, such energy commodity transactions would be unspecified-source transactions, and default emissions factors would have to be defined. Under a load-based approach, the impact is much more significant because all in-state brokered transactions (*e.g.*, at hubs such as SP-15 and NP-15) would have to be assigned a default emissions factor, whereas this is not the case for the First Seller approach. Under a First Seller approach, there is no need to track in-state brokered transactions at all because the energy and GHG emissions are captured upstream, either at the generator for in-state sources or at the point of importation into California for imports. For imports, brokered transactions generally take place at hubs outside California (such as the Palo Verde hub). Only when the energy purchased outside California is imported as unspecified-source energy into California for consumption does it need to be captured by California's GHG regulations. Thus, for such out-of-state brokered transactions in which the energy is imported in California, default emissions factors need to be assigned under both a load-based and a First Seller approach. However, once the energy is imported into California, there is another significant difference between the First Seller and load-based approach depending on whether the importer is a load serving entity (LSE) or a marketer.

Under the First Seller approach the identity of the importer makes no difference (because the GHG emissions are always captured at the point of import), but under a load-based approach, the identity is critical. Under a load-based approach, if the importer is an LSE, the emissions are captured at the point of import. However, if the importer is a marketer, the emissions are not captured then, but only when there is an eventual sale to an LSE. Because this sale can take place in several forms (*e.g.*, a brokered transaction in NP-15 or SP-15, a sale through the California Independent System Operator's (CAISO's) day-ahead or real-time market, or an export followed by an import and a sale to an LSE), several possible default emissions factors may ultimately apply under the load-based approach. Thus, under a load-based approach not all importers are treated the same, which amounts to discriminatory treatment. This discriminatory treatment for different importers may create additional legal issues for the load-based approach compared to the First Seller.

7. How would treatment of imports differ in a deliverer/first-seller system compared to a load-based approach?

The primary benefit of the First Seller approach is that the linkage between an import and the responsible entity is direct. Under the First Seller approach, the identity of the responsible entity is determined at the location of the import. In contrast to the direct linkage under the First Seller approach, the imported energy under a load-based approach could pass through many entities and ultimately ends up as unspecified energy in a clearing market. It could then be sold to unknown parties to serve load. The lack of direct link between imported energy and the concomitant lack of GHG emission coverage accountability is one of the major failings of the load-based approach. To counter this failing of the load-based approach, a method is needed to identify not only the amount of GHG attributable to the imported energy but also the identification of the eventual LSE. Designing such a method is an administratively burdensome task and ultimately is subject to substantial opportunities and large incentives for gaming.

SCE notes that either approach requires an estimate of the GHG profile of the generating unit for non-resource specific imports. The First Seller approach might be able to provide more accurate data about the GHG profile of the imported resource because the GHG emissions are accounted for at the point of import.

8. To sum up your answers to the previous questions, provide a succinct but complete definition that identifies, for each way in which electricity could be delivered to the California grid, the entities that would be responsible for compliance with AB 32 regulations under a deliverer/first-seller approach.

SCE developed a matrix identifying how power is produced within or imported into California. For each scenario, SCE identified the entity designated as the First Seller. This matrix, a description of the "rules" for First Sellers, and some examples are attached hereto as Appendix A.

As with any new process, subject matter experts will identify additional issues in the implementation of the First Seller approach to cap-and-trade in the electricity sector. SCE recommends the CPUC form a technical working group and convene a technical workshop as soon as practicable to address the implementation issues described herein, including utilizing E-Tags as the mechanism for identifying the First Seller for GHG purposes.

B. **Responses to General Policy Questions**

9. Compare and contrast the environmental integrity of a deliverer/first-seller and a load-based approach. How would a First Seller approach address leakage? How would a delivered/first-seller approach address contract shuffling?

Leakage will be a problem in any California-only approach to regulating GHG emissions because of the interdependency of California in the western grid. However, with respect to imported energy the First Seller approach is much less susceptible to gaming than the load-based approach. It therefore offers higher environmental integrity. The First Seller approach offers a decided advantage when dealing with leakage and contract shuffling issues with respect to imported energy. The following example shows how contract shuffling can occur for imported energy under either approach. A California LSE with an existing contract for power from an out-of-state "high carbon" resource could arrange to swap that power with an out-of-state market participant that has a contract for "clean" power. Under a load-based approach, the California LSE would not have to submit any emission allowances for the imported power because it came from a clean resource. Similarly, under a First Seller approach, the entity to take the delivery of the power (the First Seller) would not have to submit any emission allowances for the same reason. The net impact in this case is the same under both approaches. What will alter the decision to shuffle contracts will be the market price signal for each approach.

In the example above, under both the First Seller and load-based approaches, the out-of-state market participant could charge a premium for the "clean" power because it has more value to a California LSE. This would internalize the costs of emissions to a degree and would tend to reduce leakage. These market price signals should be the same under both the First Seller approach and load-based approach.

However, consider another example in which a "higher carbon" out-of-state generator sells to an in-state marketer, who then resells to an LSE. Under a load-based cap system, the transaction would look like an undetermined in-state source, and it would have an emission rate assigned to it that would be lower than its actual emissions, thus contributing to leakage. In this same case, under a First Seller approach, the seller of the "higher carbon" power would incur emissions costs based on the specific sources that it would internalize in the selling price, fully accounting for the associated GHG emissions and minimizing leakage. Thus, under this scenario, the First Seller approach would better address leakage.

Furthermore, under a load-based cap, sales from "higher carbon" generators into the CAISO will not have their emissions fully captured unless they are marginal units, and even then, only if the actual marginal unit and not a pre-determined proxy is used for CAISO market emissions.

Under a First Seller approach, all in-state generators will assume responsibility for their emissions. In-state generator bids in the CAISO's markets will internalize these costs. Identified out-of-state generators become responsible for their specific emissions when they bring power into the state for sales to the CAISO. At that point, they too would internalize the emissions cost into their bid. An assumed emission rate is assigned to unidentified out-of-state generation under both the load-based and the First Seller approaches.

However, with respect to in-state generation, the First Seller approach is less susceptible to problems of contract shuffling and gaming than a load-based approach. Under the First Seller approach, a California generator cannot evade responsibility for emissions by disguising the nature of its output as an unspecified source product or by exporting its output outside of California and simultaneously importing power from a "clean" source outside California. Instead, the First Seller approach captures in-state generation at the source, making the final point of delivery of that energy irrelevant. Thus, the First Seller approach has an advantage over the load-based approach in addressing contract shuffling with respect to California generation.[3]

10. Would the scale of possible emissions leakage or contract shuffling differ under the deliverer/first-seller approach compared to a load-based approach?

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[3] As noted above, the First Seller approach also has an advantage when it comes to imports into California by marketers, since a load-based approach does not capture these imports at the location of the importation.

Under either approach, market participants will have the ability to engage in contract shuffling or other transactions designed to subvert the goals of AB 32, resulting in the leakage of GHG emissions. However, the First Seller approach is less susceptible to the problems of contract shuffling and gaming compared to the load-based approach. As described above, the scale of possible emissions leakage or contract shuffling would be similar under the First Seller approach and a load-based approach with regard to imported energy from an indeterminate source, provided the entity importing the power is an LSE, not a marketer. However, there are greater leakage concerns associated with direct sales to the CAISO and for imported power sold through a marketer under a load-based approach. In addition, with respect to in-state generation and imports by marketers, the load-based approach is more susceptible to problems of contract shuffling and gaming compared to the First Seller approach.

11. Is there any advantage to applying the deliverer/first-seller approach to reporting only, while having the retail providers be the point of regulation (as with load-based)? Why or why not?

SCE does not see any advantage to applying one approach (*i.e.,* First Seller approach) to reporting and a different approach to the point of regulation (*i.e.,* load-based approach). One of the criteria for evaluating the reporting protocol is simplicity. Using different approaches for reporting and regulation does not meet the criteria of simplicity and will only further complicate the difficult task of compliance with AB 32. The California energy market is a complex web of transactions that are not always transparent. Accounting and tracking emissions will be a difficult task under either a First Seller or a load-based approach, although as previously discussed, the First Seller approach will likely result in more accurate and straightforward reporting. Requiring market participants and the state agencies to track emissions using both approaches effectively doubles parties' efforts with no apparent benefit.

12. Compare and contrast the deliverer/first-seller and load-based approaches in terms of their impacts on electricity prices, costs, and reliability for consumers.

The minimization of unintended consequences is another criterion identified by the Joint California Public Utilities Commission and California Energy Commission Staff Proposal for an Electricity Retail Provider GHG Reporting Protocol ("Staff Proposal") for choosing among various reporting protocols. "The reporting method should not distort the electricity markets by causing retail providers to make non-optimal resource choices."[4] The load-based approach does not satisfy this criterion.

As discussed below, a load-based approach, like the one set forth in the Staff Proposal, will likely result in negative financial and reliability consequences in market transactions that would not otherwise occur under a First Seller approach. The market distortions created by a load-based approach will cause clean resources to favor bilateral contracts over selling to the market (*e.g.,* a broker or the CAISO). Bifurcating supply between bilateral arrangements with LSEs and the CAISO market will lead to reduced liquidity in the CAISO market and that, in turn, could affect system reliability.

It is important to note that under a load-based and First Seller approach, the emissions costs to an LSE will be the same. As shown in the figure below, the total cost to the LSE is the same under either scenario.[5] The difference between these approaches is how the market responds to GHG emissions regulations in terms of bidding behavior. To better understand the

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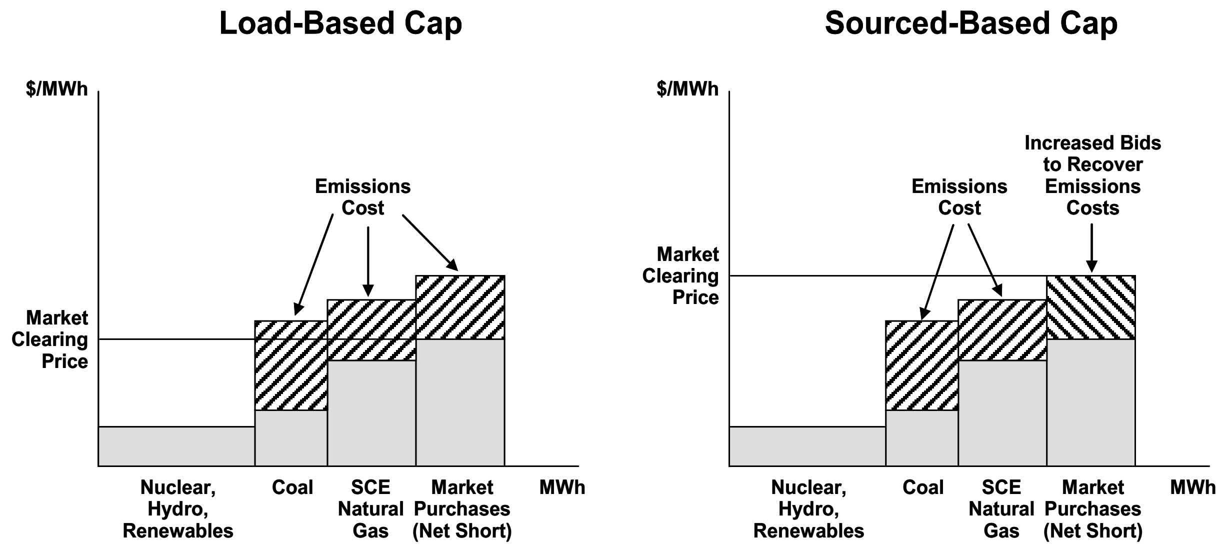
4 Staff Proposal at 7.

market distortions caused by a load-based approach, a closer examination of the economic features between load-based and First Seller approaches is required.



First, consider transactions entered into by a non-LSE generator under a load-based approach. The generator sees no change in market prices, as seen in the figure above, because prices will still be set at the marginal cost of generation. The generator also does not incur increased costs because the LSE is responsible for the cost of emissions. However, a "clean" generator can provide value to an LSE subject to a load-based approach because the LSE will not incur any additional emissions costs for the clean power.[6] The LSE will be willing to pay a premium over the market clearing price to the clean generator. The opposite is true for a "high carbon" generator, who will have to sell at a discount relative to the market clearing price. Therefore, "clean" generators have a financial incentive to enter into bilateral contracts with an LSE as opposed to selling to the market. Such transactions introduce the potential for market distortion.

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5 The resource costs in the figure represent only the LSE's variable costs for the resource types in the illustrative example depicted.

6 For the purposes of this discussion, "clean" can be considered as a resource with no emissions. In fact, the same incentives hold true for any resource with lower emissions than those associated with a market purchase.

Under a First Seller approach, emission costs are internalized for generators (see the figure above), and the market clearing price reflects this economic adjustment. Regardless of how "clean" or "high carbon" a generator is, it will receive the market clearing price. In such a scenario, there is no incentive (or disincentive) for the generator to enter into a bilateral agreement with an LSE and therefore no potential for resulting market distortions. It is important to note that the total costs an LSE incurs in either case is represented by the shaded sections in the figure above, with the gray areas illustrating the operating costs, and the hatched areas representing the emissions costs that either increase the direct cost to the LSE (under a load-based approach) or increase the market purchase cost to the LSE (under a First Seller approach). The total cost the LSE would incur and pass on to retail customers in either a load-based or First Seller approach is the same.

In summary, a First Seller approach results in direct internalization of emissions costs in a manner that should not substantially alter how parties transact bilaterally or in markets. A load-based approach will distort the market by fundamentally altering the economics of trades between bilateral transactions and markets. In doing so, potential threats to the reliability and efficiency goals of MRTU will need to be carefully considered as discussed in greater detail below. If some parties, such as "clean" resources that cannot receive their full value from CAISO markets, are no longer willing to provide power through such markets, this may deprive the CAISO of access to dispatch of these resources for reliability purposes (except in emergency conditions). Furthermore, as explained below, a load-based approach will also reduce the ability of MRTU's optimal dispatch from reaching an efficient outcome, since a substantial set of resource alternatives (through bids from clean resources) are likely to be replaced with self-schedules by these resources to ensure their operation is consistent with bilateral contract terms.

13. Would a deliverer/first-seller approach and a load-based approach have different impacts on wholesale power prices? Which would result in higher prices? Why? Is this good or bad?

A First Seller approach would likely result in higher wholesale prices than a load-based approach, but both approaches would yield the same retail price. The change in wholesale prices is neither "good" nor "bad" from the ratepayer's perspective because retail prices would remain the same under either approach. Retail prices do not change because GHG emissions costs and operating costs are the same under both approaches (see graph above). The difference is that under a First Seller approach the generator will internalize the cost of emissions and increase market bids. Under a load-based approach, generator bids do not change and the LSE is responsible for the cost of emissions. However, under both scenarios these costs are the same and are accounted for in retail prices. See the response to Question No. 12 for more details.

14. What impact would a deliverer/first-seller approach have on long-term investment in low-GHG emitting generation technologies? Is this better or worse than under a load-based cap? Why?

The First Seller approach will result in greater encouragement of long-term investments in "clean" generation compared to the load-based approach. Under a load-based approach, clean generators will favor bilateral contracts over market sales to realize the full value of their low-emission power (as discussed in the response to Question No. 12). This incentive to enter into bilateral contracts may reduce the opportunity for clean generators to recover their investment costs and, as a result, may discourage investment in clean generation. However, under a First Seller approach, clean generators will not be limited in their choice of transactions and will be more likely to recover their investment costs, thus, providing a more favorable investment opportunity.

Ultimately, consistent and stable price signals will determine whether investors make long-term investments. Proper implementation and execution of a cap-and-trade system will send such price signals. Additionally, emission allowances need to be scarce enough to limit supply and warrant a price that is significant enough to encourage investments. Minimizing the price volatility of the emission allowances will also encourage long-term investments. Further, the addition of a safety valve will reduce the risk of price spikes for allowances and facilitate long-term investments.

15. How would a deliverer/first-seller approach interact with an upstream program design as articulated in Chapter 4 of the Market Advisory Committee report? Explain your answer in detail.

The upstream program described in Chapter 4 of the CMAC Report (described as "Program 4") is an alternative to the First Seller approach. The First Seller approach is a component of Programs 1, 2 and 3 described in the CMAC Report. The two approaches (*i.e.,* the First Seller approach and the upstream program approach) are mutually exclusive and do not interact.

16. What impact would a deliverer/first-seller approach have on electricity service providers?

The impact of a First Seller approach on electricity service providers ("ESP") will be the same as the program's impact on LSEs as described in the response to question no. 12.

C. Responses to Questions Regarding Interaction with Energy Markets

17. Compare and contrast the impact that a deliverer/first-seller and a load-based system would have on the existing wholesale energy markets, both at the California Independent System Operator (CAISO) and outside of it.

The First Seller approach is superior to the load-based approach in terms of dispatch decisions made by the CAISO (or another system operator) to address system conditions such as transmission line over-loading or potential transmission system instabilities. CAISO dispatch for system reliability reasons is fairly common. GHG emissions associated with such dispatches are not directly attributable to LSE's actions. The load-based approach attributes these emissions proportionally based on an LSE's purchases (if any) in the CAISO's market in that hour. Thus, allocation is not connected to the cause of the dispatch.

By contrast, the First Seller approach attributes the GHG emissions to the entity establishing the electrical energy output level of the generator for commercial purposes. That entity is easily able to build the cost of the associated GHG emissions into its bid to the CAISO in order to receive full and fair compensation for the dispatch order. Thus, wholesale prices reflect the internalized GHG emissions cost.

Furthermore, under MRTU, the CAISO procures additional generation for transmission losses. This additional procurement is not directly attributable to any LSE and thus is not easily attributable to a specific entity under the load-based approach. However, the First Seller approach captures these emissions and attributes them to the First Seller. This is the case because the First Seller reports its emissions for its actual generation, including its generation to compensate for transmission losses.

See the responses to questions nos. 12 and 13 for a further discussion of the impact of the two approaches on wholesale energy markets.

18. For those entities participating in the CAISO markets, what would be the likely differential impacts of a deliverer/first-seller versus a load-based system on the CAISO's implementation of the Market Redesign and Technology Update (MRTU) system, including day-ahead and real-time markets for energy, transmission, and reserves?

The load-based approach has the potential to interfere with the intended operation of MRTU under the CAISO, as well as to require a great deal more tracking and reporting by the CAISO than under the First Seller approach.

In order to describe the impact of the load-based approach on behavior and operations under MRTU, it is useful to discuss the intended operation of MRTU. Under MRTU, all resources utilized by LSEs to meet resource adequacy requirements will be obligated to offer their power for sale into the CAISO markets. Since each LSE within the CAISO must satisfy a reserve margin requirement with qualifying capacity of 115% to 117% of its peak load (or an equivalent approach by municipal entities), adequate generation will be offered to the CAISO market to satisfy all of the load within the CAISO's grid control. If California replaces its resource adequacy requirement with a centralized capacity market, a similar must offer requirement will apply to capacity to meet all of the CAISO's load plus reserves. The Staff Proposal errs when it states, "it is estimated that the IFM may handle 10-20% of total energy once it is operational," an estimate attributed to the CMAC Report.[7] As explained above, the CAISO's integrated forward market ("IFM") (the day-ahead market) will include nearly 100% of total energy requirements. The CAISO's real-time market is anticipated to be less than 5% of the load.

Thus, under MRTU, virtually all generation owned or controlled by LSEs will be bid into the CAISO's markets, predominantly in the IFM (as noted above, "clean" generation will likely be "scheduled" in the IFM as opposed to being "bid" in the IFM so that an LSE buyer may take credit for zero or low GHG emissions associated with that generation). The Staff Proposal does not consider this.

Under a load-based approach, an accounting protocol would be required to associate an LSE's portfolio of generation resources with that LSE's load. One such protocol is that as long as an LSE is in a net short position, all of the generation from the LSE's portfolio is assigned to that LSE in terms of GHG emissions responsibility. If an LSE has more generation in its portfolio than its load obligation requires, then the excess generation is sold into the market.

The Staff Proposal discusses three methods for establishing which resources and accompanying GHG emissions should be associated with these wholesale sales and recommends an adjusted, all-in method.[8] Exceptions to this protocol may be necessary under some circumstances (these are described later). Such a protocol is necessary, however, because without one there is no effective way to determine which resources should be assigned to which LSEs for GHG accounting purposes because, under MRTU, all LSEs' load is served from the pool of CAISO resources. The process of tracking which resources are provided by which LSEs becomes necessary under a load-based structure because LSEs need to know what level of generation has been dispatched from which resources in their portfolio in order to determine their

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[7] Staff Proposal at 2.

[8] *Id.* at 26-28,

obligation to provide emission allowances under a load-based cap-and-trade system. This leads to the assigning of arbitrary values to certain categories of resources, such as imports from the Pacific Northwest or the Southwest. Furthermore, it will be necessary to track which resources are not part of an LSE's portfolio in order to update the GHG emission rates for in-state unspecified purchases from the CAISO markets. It may also be necessary to have this information in order to determine the degree to which California is meeting its GHG targets established under AB 32. This entire process would be an administrative nightmare and, because of its complexity, would be more susceptible to gaming.

The process by which an LSE bids its generation portfolio under a load-based system compared to a First Seller system needs to be understood in order to see how market behavior is anticipated to change under these structures, and what the implications of those changes are on the electricity markets. In order to understand bidding behavior under the assumption of a competitive market, it is important to first look at the trade-offs participants make in order to minimize their costs.

First, consider the current market for an LSE (no GHG emissions cap-and-trade system). When an LSE with a generation portfolio and a load (assume that its load is larger than its own portfolio for explanatory simplicity) is deciding how to generate and purchase so as to minimize its cost, it will first bid in at low cost all of its least expensive generation. When such generation is exhausted, at some point the LSE will have to decide whether the next kWh should be served by a kWh from its own portfolio or by one purchased from the market. It does so by bidding its generation at the marginal operating cost of producing that kWh. As such, if it is cheaper to run a generation unit than it is to purchase resources, the market will accept the bid, and if it is cheaper to purchase a resource from the market, then the bid will not clear that market. The market will clear at the marginal operating cost of the most expensive unit required to serve the load, and more costly generation will not clear the market.

Now, consider the introduction of a cap under the First Seller approach. The LSE becomes responsible for both the operating cost of its generation and the GHG emissions cost of its generation. The LSE in our example bids to minimize its total cost to serve its load. It must now reflect the fact that if it generates the next kWh, it will incur both an operating cost and an emissions cost. Thus, its bid must be equal to the sum of both of these costs in order to ensure that it will generate when it is cheaper to generate than to purchase from the market. Conversely, it will not generate when it is cheaper to purchase than to generate. The price in the market will now be established by the most expensive bid necessary to meet the load obligations of the market, which will then reflect not only the marginal operating cost, but also the marginal GHG emissions cost. The market price will be higher than it would have been without the First Seller cap-and-trade system because now it will reflect emissions cost.

Under a load-based cap, the LSE becomes responsible for its generation cost, including the emissions cost associated with all of the generation in its portfolio, as well as the cost of purchasing power in the market and the emissions costs associated with those market purchases. Under this paradigm, the trade-off that the LSE makes is whether it will be more costly to generate another kWh, including the marginal operating cost as well as the marginal emissions cost from generating, compared to purchasing from the market and paying the market clearing price as well as paying the cost of emissions associated with that market purchase. Assuming the LSE knows the emissions cost of purchasing from the market, it will bid so that its cost of generating (the marginal operating cost plus emissions cost of generation) does not exceed what it expects to pay if it purchases from the market (the market clearing price plus the emissions cost associated with market purchases). The LSE's bid is therefore its marginal operating cost plus the difference between its cost of emissions from generating and the emissions cost associated with purchasing from the market. The market price will not reflect the cost of emissions from the marginal unit as it did in the last case because the generators need only adjust their bids to reflect the *difference* in emissions compared to market purchases. At the margin, for the last unit dispatched to satisfy system load requirements, there is no difference, so that bid should be just the marginal operating cost of the unit as in the case with no cap-and-trade program.

What does all this mean in terms of behavior in the markets? Consider how an independent generator may participate. Recognizing that under a load-based cap the generator has no obligation to pay for its own emissions, it can bid into the CAISO's markets just as it did before, and it will earn profits if its costs are lower than the market-clearing price — approximately the same as without a cap-and-trade program. The generator may also consider selling bilaterally to an LSE. The LSE will only become responsible for the emissions from the generator if it makes the purchase under a bilateral contract. Therefore, the LSE will compare the cost of making the bilateral purchase to what it expects to pay if it purchases from the market (note that under MRTU, if the LSE makes the bilateral purchase, it will in turn offer this contracted power for sale into the CAISO's market and become responsible for GHG emissions as described previously). If the independent generator is a clean unit, then the LSE would incur reduced emissions cost from purchasing from this unit, and it should be willing to pay a premium compared to the price it would pay in the market. The clean independent generator can earn a premium by selling bilaterally to an LSE. Conversely, a "higher carbon" generator can sell into the CAISO's markets much as it did prior to a cap-and-trade market. However, if the dirty independent generator wants to sell to an LSE, the LSE would be saddled with the high emissions cost from the dirty generation. The LSE would demand a discount in order to make such a purchase otherwise it would be better off purchasing from the market and incurring fewer emissions costs than if it made the bilateral purchase.

As discussed in the previous section, the best way for these independent generators to act is for clean generation to sell bilaterally, and eschew the CAISO market, whereas "higher carbon" generation should sell to the CAISO and avoid taking the discounted payment it would receive from selling bilaterally. Under the First Seller approach, the independent generator is responsible for its own emissions cost and would be willing to sell to the CAISO or to the market as long as it could receive more than its marginal operating cost plus emissions cost. The generator's behavior would look no different than under a system without a cap-and-trade approach, except that it would demand a higher price to generate and sell.

From a CAISO/MRTU perspective, the load-based cap would diminish the set of resources willing to bid into its markets, forcing the clean resources to sell bilaterally. In order to ensure that the LSE purchasing this clean power would get the benefit of that generation as part of its portfolio for GHG emissions purposes, the LSE would either self-schedule its clean contracted power, or discount its bid price to reflect its lower emissions cost (as previously described). Such behavior will diminish the CAISO's ability to optimize system dispatch across all of its resources, and thus will not fully capture the benefits of MRTU.

If the independent generator described above were contemplating GHG emissions reduction investment in light of GHG emissions prices emerging from a cap-and-trade program, a load-based cap can lead to inefficient investment decisions. Consider for example the case of the "higher carbon" generator. As described above, that generator would choose to sell into the

CAISO's market to avoid receiving a discounted price for its "higher carbon" power. If an investment could make the power cleaner, but not clean enough to be lower emitting than a market purchase from the CAISO, then there would be no gain in payment possible to justify such an investment. Under a First Seller approach, that same generator would be responsible for its high emissions and the cost of allowances associated with them. If that generator could make an investment lowering its emissions cost, it would benefit by incurring reduced costs, while the revenue it would receive from sales into the CAISO market would be unchanged. Lower costs with the same revenue means higher profits.

The value of generation resources may be reduced under a load-based cap-and-trade system. As discussed previously, clean power can only capture the value of being clean by selling bilaterally to an LSE under a load-based system. Conversely, a "higher carbon" unit can only avoid accepting a discounted price for its power by limiting its sales to a marketer or to the CAISO. Thus, in either case, under the load-based cap the options available for the generator to sell are limited compared to a First Seller system (or compared to no GHG regulation – the status quo). This reduced optionality reduces the generator's value.

Another complication associated with a cap-and-trade program under MRTU is establishing appropriate billing for the power needed to supply system requirements. When an LSE submits a bid to the CAISO from its portfolio, then under the aforementioned GHG accounting protocol, the generation that results from that bid would generally be attributed to the LSE in whose portfolio the generation resides. The LSE will establish its willingness to operate the unit depending on what market prices result based on its bid. In the case of a "higher carbon" unit, that bid will be higher reflecting the difference in emissions costs between the dirty unit and a purchase from the market. In some circumstances, such as if the unit is in a constrained area, the CAISO may intervene in the market and dispatch the generating unit even though the unit does not clear the market if the CAISO needs the generation from that unit to satisfy a reliability need. Under MRTU, the unit's bid would be mitigated to a default value reflecting its operating costs. But if this "higher carbon" unit is operated and paid at a default bid rate to satisfy a reliability need, the LSE in whose portfolio the unit resides would be assigned the high emissions and incur the associated costs. Despite bidding to avoid operating the "higher carbon" unit unless market prices are high enough to justify its operation, the unit would be operated and the LSE could be held responsible for its emissions even though it had no discretion regarding the operation of the unit.

Either the CAISO should develop a rule that reallocates the cost of this redispatch to those responsible for the reliability need (not necessarily the LSE in whose portfolio the resource resides) or the default bid used to dispatch this unit should be modified to ensure that the LSE is fully compensated for the increased emissions resulting from running its unit out of merit order.

Finally, the Staff Proposal's reporting protocol may also interfere with the intended operation of MRTU by creating an incentive for market participants to transact in the CAISO's real-time market instead of CAISO's IFM (day-ahead market). The Staff Proposal assigns an assumed emission rate of 1,000 lbs/MWh to purchases from the CAISO's IFM and a 900 lbs/MWh assumed rate for purchases from the CAISO's real-time market. If day-ahead prices are equal to real-time prices (as is the desire of the Federal Energy Regulatory Commission ("FERC") and the CAISO after they introduce Virtual or Convergence Bidding as scheduled in February 2009), purchasers following least-cost dispatch principles would purchase as much as is permitted in the CAISO's real-time market in lieu of the IFM. This is directly contradictory to the objectives of the CAISO in encouraging the use of forward markets like the IFM instead of the real-time market.

The First Seller approach avoids these complexities and market distortions.

19. To what extent would either approach (deliverer/first-seller or load-based) be likely to alter the dispatch of existing generation units in the near-term? Why? If there is a difference between the approaches, how significant would it be?

Under either approach, sellers' bids into the CAISO will change in order to reflect changed rules. Under a load-based approach, if the market were fully competitive, bidders should bid their marginal operating cost plus the difference between their GHG emission rate and the rate associated with market purchases, times the price of emissions allowances. Under a First Seller approach, if the market were fully competitive, sellers' bids would be equal to their marginal operating cost plus their GHG emission rate times the price of emission allowances. In either case, to the extent units' emission rates changes the relative ranking of generators in the CAISO stack (subject to all of the constraints built into the CAISO's optimization), the dispatch order will change. The degree of change is difficult to predict without simulation modeling and assumptions regarding the future price of emission allowances. It is likely that until the allowance price makes coal generation more costly than natural gas generation, the changes in dispatch will not be substantial, since the relative ranking in operating costs of natural gas generation units correlates reasonably well with the GHG emissions rates of those units. The added GHG emissions costs incorporated into a bid do little to reorder gas generation units that predominantly make up the marginal dispatch choices within the CAISO's market.

As long as the same units offer bids to the CAISO, dispatch should not be different under either the load-based or the First Seller approach. However, under a load-based approach, LSEs have incentives to self-schedule their clean generation in lieu of bidding it into the market, and such a behavioral change could have some impact on which units are available for dispatch by the CAISO.

D. Responses to Questions Regarding Interaction with Existing Programs and Policies

20. How would a deliverer/first-seller approach interact with the Public Utilities Commission's Resource Adequacy requirements and procurement/portfolio oversight? How would this approach affect efforts to maintain resource adequacy by the publicly-owned utilities (POUs)?

The implementation of a First Seller approach will not have a significant impact on the procurement of products needed to meet California's resource adequacy requirement. The resource adequacy program is a capacity requirement with obligations to schedule or bid energy into the CAISO's market. This procurement of capacity will continue in order for entities to meet this regulatory requirement. The cost of energy will increase due to the imposition of a GHG program. However, there is not likely to be a difference between a load-based and a First Seller approach, nor would there be a difference with or without a resource adequacy requirement.

21. How would a deliverer/first-seller approach interact with the Public Utilities Commission's promotion of end-use efficiency? How would this approach affect energy efficiency programs for the POUs? Under which system (deliverer/first-seller or load-based) would the penetration of end-use efficiency likely be greater? Why.

The impact on end-use efficiency should not be any different under the First Seller approach than under the load-based approach, assuming either programs is implemented and enforced properly. The price signals to the market should be similar under either approach, creating equal incentives for implementing end-use efficiency for publicly-owned utilities ("POUs") and end users alike.

22. <u>How would a deliverer/first-seller approach interact with the State's Renewable Portfolio Standard requirements (both existing and proposed)</u>?

The First Seller approach will interact with California's Renewable Portfolio Standard ("RPS") no differently than would a load-based approach. In both cases, the RPS requirements could complement a cap-and-trade system. Assuming a comprehensive and fully competitive cap-and-trade system is implemented under AB 32, it may make increase RPS goals unnecessary or even counterproductive.

23. <u>How should renewable energy generators be treated under a deliverer/first-seller system</u>?

No change in the treatment of renewable energy generators is necessary under a First Seller system. If the renewable energy generator is participating directly in the market and has no emissions, it can be expected to bid as it did before and receive higher revenue from increased market prices.[9] The LSEs would treat renewable generation in their portfolio no differently under a First Seller approach than absent a GHG program. Additionally, since renewable resources would typically bid as price takers into the CAISO's market, there should not be any different treatment of renewables under a load-based program.

24. <u>Compare and contrast the impact of deliverer/first-seller and a load-based approach on the voluntary renewables market</u>.

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[9] SCE is not aware of any in-state renewable resources that are not contracted to California LSEs, and under the RPS, there is a strong incentive for that pattern to continue.

If the "voluntary renewables market" refers to retail programs providing the option for customers to pay an additional fee to increase the fraction of their load that is met with renewables resources and these funds are used to procure renewable resources beyond business-as-usual practices, then there should be no difference between the load-based and First Seller approaches. In either case, the volume of additional renewables procured would be based on the accumulation of dollars collected from customers. The impact on utility costs and rates would be the same under either approach.

25. Would one approach (deliverer/first-seller or load-based) have an advantage over the other in producing the greatest amount of emissions reductions through modifications (*e.g.*, retrofitting, efficiency improvements, *etc.*.) to existing power plants? Why?

The First Seller approach has an advantage over the load-based approach in producing the greatest amount of emissions reductions through modifications to existing power plants. The First Seller approach provides a more favorable environment for investments in modifications to existing power plants. SCE's response to question no. 14 discusses the reasons why the First Seller approach encourages long-term investment in clean generation.

E. **Responses Regarding Questions on Reporting, Tracking, and Verification**

26. What would be the data and administrative requirements of the deliverer/first-seller approach?

For in-state resources, generators will already have to report of GHG emissions pursuant to CARB regulation. CARB has issued a draft document that develops the appropriate measuring, monitoring, and reporting requirements for all in-state generating resources. Once this document is complete, its methodology will provide sufficient information with which to attribute an amount of GHG emissions to any energy produced by an in-state generator. For out-of-state resources, to be received by a California Balancing Authority, there are two potential data requirements associated with the emissions from an imported resource.

For unit-specific imports, a GHG emission profile will be provided by the generator to the relevant regulatory entity within the state in which the generator resides or to CARB if it has voluntarily registered (and no registry exists within the generator's resident state). If a generator chooses not to register in either its resident state or with CARB, then that unit will have a system level of emissions attributed to it. In all instances, California must assure itself that all out-of-state generators that are either owned or operated by a California Balancing Authority register and designate the emissions associated with such resources with CARB.

For sales that are not unit-specific and that are imported into California, a proxy of the system's GHG emissions will need to be developed. There are many ways to develop such a system average emissions profile.

Additionally, as noted earlier, a dispute resolution process will be needed in order to resolve issues regarding emissions profiles. Such a process is likely to add some incremental administrative responsibilities to the First Seller approach.[10]

27. <u>How would the deliverer/first-seller approach relate to the Public Utilities Commission/Energy Commission Staff reporting protocol proposal, *i.e.*, would the deliverer/first-seller approach require modifications to the Staff reporting proposal, or could it serve as an interim reporting protocol? If modifications are required, what exactly would they be?</u>

The Staff Report itself states that the reporting rules contained within it are specific to a load-based approach.[11] As such, certain modifications will be required to implement a First

Seller approach. However, for regulatory elements common to both load-based and First Seller protocols, the Staff Report can be useful. Examples of such common elements are the task of determining GHG emissions for specific generating sources and the task of estimating GHG emissions for imports from unspecified sources based on the exporting region/control area.

28. If a deliverer/first-seller approach is adopted, what would be the pros and cons of requiring reporting both from deliverers/first-sellers and retail providers, in order to provide ARB with multiple control data sets for comparison?

There is no benefit to requiring retail providers to report if a First Seller approach is adopted. As mentioned in response to Question No. 7, a retail load-based reporting scheme will require an estimate of emissions not only for non-source specific imports, but also for purchases made through an in-state clearing market. No such estimate is required under a First Seller approach. Under a First Seller approach, GHG emissions are identified at the point of their importation to a California Balancing Authority or at the point of their generation. Because of the differences between the information obtained under the two approaches, no meaningful comparison is possible between retail provider reported data and data obtained under the First Seller approach.

Another reason why the two approaches cannot be compared is a result of the breadth of information captured under the two approaches. Specifically, under the First Seller approach, as proposed by SCE, there will be counting mechanisms for all GHG emissions associated with 1) energy produced and consumed inside the state, 2) energy imported into a California Balancing Authority for consumption inside the state, and 3) energy produced in-state for export out-of-

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10 SCE notes that a dispute resolution process would also be needed under a load-based approach.

11 Staff Report at 1.

state. Retail provider reporting may not completely account for the emissions associated with energy produced in-state for export out of state. Specifically, a retail reporting requirement may fail to account for emissions associated with power produced and then exported away from California, never having been touched by an in-state retail provider. This flaw in the retail reporting requirement renders any type of comparison between "multiple control data" sets meaningless, since the retail provider set will inevitably miss the emissions associated with certain transactions.

Lastly, the CPUC must consider cost as a disadvantage of any retail provider reporting requirement. Collection, preparation, evaluation, and verification of the requested data will require the extensive dedication of resources by each retail provider from whom information is required. Additional expense will accrue if the governmental agency receiving the data intends to use the reported data to perform any analyses. In light of the aforementioned problems with deriving a meaningful comparison from the two data sets, the costs of a retail provider reporting system are unwarranted and unnecessary.

29. Compare and contrast the ability to a deliverer/first-seller and a load-based system to create confidence for investors and confidence for environmental advocates about tracking and compliance.

Because the First Seller approach is more accurate, less complex to administer, and less prone to leakage than a load-based system, adoption of that approach will create greater confidence for investors, environmental advocates, and the public. Also, because the First Seller approach is more compatible with potential regional, national, or international GHG regulation regimes, it will be seen as a more durable regulatory framework. Investors will be concerned, for example, about spending money to reduce GHG emissions if they are not confident about being able to capture the full value of the emissions reduction. Under a First Seller approach, capturing all the emissions reductions is relatively straightforward, insofar as the generator reports its GHG emissions (for in-state generation) and is responsible for obtaining allowances sufficient cover them. Under a load-based approach, however, the reduction in GHG emissions must be accurately tracked to an LSE which reports its GHG emissions. If the generator sells some portion of its output as unspecified-source energy (for example, to the CAISO under MRTU), the generator might not obtain credit for some of its emissions reductions, as a default emissions factor is applied for unspecified-source energy.

Trading GHG allowances among regions would be more problematic under a load-based approach, since a load-based approach is more prone to gaming, leakage, and accounting complexity than the First Seller approach. A regulatory authority for another region might be unwilling to allow its surplus allowances to be sold to California, or to allow its jurisdictional entities to purchase surplus allowances from California, out of concern for the integrity of the California program.

30. <u>Who/what governs access to the purchasing/selling entity data on the NERC E-tag? What would a state agency need to do to obtain access to E-tag data</u>?

One way for a state agency to obtain necessary information regarding NERC E-Tags is to gather from the WECC those E-Tags that represent California imports (see discussion of this option in response to question no. 4 above). As the regional reliability organization for the West, the WECC receives copies of all E-Tags in that region. By obtaining data in this manner, the responsible state agency can efficiently obtain all necessary information from one entity.

However, if obtaining data from the WECC is infeasible or undesirable, another option could be to turn to the Balancing Authorities. Each Balancing Authority receives a copy of the

E-Tags that enter or leave its control area. Accordingly, each California Balancing Authority will have a copy of the E-Tags that represent the imports received by California into its control area.

31. <u>What role would the CAISO play, if any, in the implementation and administration of a deliverer/first-seller program? What role would other control area operators or balancing authorities play</u>?

Under a First Seller approach, sellers are expected to fully internalize emissions cost within their bids. The CAISO optimization rules for the market will behave exactly as they would otherwise, although the bids themselves will be different for many resources. When the CAISO needs to engage in bid mitigation, it will need to change its assessment of cost-based or competitive bids that reflect internalized emissions costs.

A load-based approach will require a similar change, although the numerical magnitude of the adjustment to bids would be calculated differently between the two systems.[12] Further action by the CAISO will be necessary, under a load-based approach to assist LSEs in tracking and compliance. Under either a First Seller or a load-based approach, control areas outside California may be asked to assist in verifying the source of generation imported to California. Furthermore, under a load-based approach, similar assistance in verifying generation sources might be needed for control areas inside California that transact with the CAISO.

The role of the CAISO and other control areas also comes into play to the extent there is a need to get E-Tag data from California Balancing Authorities. If E-Tag data is obtained directly from the WECC, then the CAISO and other California Balancing Authorities will have little or no role in the administration of the First Seller program. While it is possible that California's Balancing Authorities may, from time-to-time, be called upon to confirm or validate certain information, for the most part, a program in which E-Tag data can be received directly from the WECC should allow for smooth implementation of a First Seller approach.

By contrast, a program requiring E-Tag data to be provided by California's Balancing Authorities, will require the CAISO to provide copies of its E-Tags to the state agency charged with reconciling the E-Tag data. Similarly, other Balancing Authorities within the state would need to provide their E-Tags to that state agency.

F. Responses Regarding Questions on GHG Emission Allowance Allocation Issues

32. Would implementation of a deliverer/first-seller approach necessitate auctioning of GHG emissions allowances? Why or why not?

The First Seller approach does not require allowance auctioning. The choice of point of regulation, such as load-based or First Seller, or even points further upstream (such as at the fuel source), are independent of the process (auction or allocation) by which allowances are provided to the market. Allowances should be allocated to those entities that would face economic harm from the imposition of GHG rules and that do not have the ability to pass on these costs. A substantial portion of allowances should be allocated to LSEs, on behalf of their customers to reduce the impact to consumers of transition from a pre- to a post-carbon constrained system. To the extent some non-LSE entities are affected adversely by the implementation of California's GHG reduction program, parties should evaluate whether some allowances should be allocated

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12 Under a First Seller approach, the total marginal emissions cost will need to be reflected in bid adjustments, and under a load-based system the difference in emissions costs between the generating unit and the system marginal rate used for purchases will need to be used.

to those entities as well. The entities that are adversely affected by the imposition of a GHG program are no different under a load-based cap than under a First Seller approach. Accordingly, the mechanism to allocate allowances should be similar under either approach.

33. <u>If you do *not* believe that an auction would be required under the deliverer/first-seller approach, explain how an emissions allocation system would work under a deliverer/first-seller approach. In doing so, answer the following:</u>

Neither the decision as to whether to auction or allocate nor the decision regarding which party should receive allowances, should depend on whether a First Seller or a load-based approach is selected.

a. <u>To whom would allocations be given</u>?

Allowance allocations should be given to entities that would suffer economic dislocation without the ability to pass on their costs upon the imposition of a GHG reduction program. This approach will mitigate economic harm to such entities and further mitigate concerns over certain entities receiving a windfall from allocation. In the case of the California electricity market, several groups will face economic harm. First, customers will face higher costs to purchase electricity. Therefore, the LSEs that represent those customers should receive allocations to mitigate the rate impacts on their customers. Second, generators whose historical emissions are higher than those of the marginal generating unit in the market will incur costs that they cannot fully pass on. Accordingly, and to the extent these generators suffer economic harm, they too should be eligible for an allocation. Third, generators who have already made long-term commitments to generate power from emitting sources after 2012, but who cannot pass on the emissions costs associated with meeting those commitments, should also receive allowances.

b. If you recommend allowances be given to deliverers/first-sellers, on what basis would allocations be given during any particular compliance period?

Allowances should be given in proportion to the degree of economic dislocation estimated to be associated with the imposition of a GHG reduction program. Based on historical emissions and estimates of the emission rate of the marginal generating unit in the market, it is possible to calculate an estimate of the economic harm that the aforementioned entities would incur. Such estimates can be used to determine the relative share of allowances each party should receive. Once a total number of allowances is determined, a proportional share can be provided to each affected entity. SCE has developed some simple formulas to calculate these allocations

c. How would the State of California know how many allowances were needed by importers?

Entities without commitments to import power into California, but which may have historically imported to California and which may do so in the future, cannot be expected to suffer a measurable economic dislocation as a result of California's GHG reduction program. Assuming the market is reasonably efficient, the economic profit from selling in California should not be substantially different than selling to areas outside of California. If the importer facing emissions costs from selling into California chooses to forego that opportunity, they will not suffer a sizeable economic dislocation, but will only suffer by going to the next best market compared to California. By contrast, generators selling their power inside California under long-term contracts will not be able to avoid GHG emissions costs by selling to an area outside of California. Accordingly, such generators will suffer some economic dislocation if they cannot fully pass on their costs. For this reason, SCE proposes that only importers to California that have binding commitments to sell to California, and who cannot fully pass on their increased emission cost from making such sales, should receive allowances consistent with the approach outlined in response to part (b) above.

d. How would marketers be treated?

Because marketers are not likely to suffer any economic dislocation because of the imposition of a GHG reduction program, they should not receive any allowances.

e. How would electricity service providers be treated?

ESPs are most likely to suffer economic dislocation by having to pay higher prices for power purchased from the market under a GHG reduction program (or directly for the emissions associated with their market purchases in the case of a load-based cap approach). For this economic impact, ESPs should receive an allowance consistent with part (b) above. To the extent an ESP owns generation, it may also receive allowances consistent with part (b) above.

f. Would zero-carbon generators also receive allowances?

Zero-carbon generators will suffer no economic dislocation from the imposition of a GHG reduction program. In fact, they will receive higher market revenues for power not already under contract, so they may see an economic benefit from a GHG reduction program. Accordingly, they should not receive any allowances.

g. What would be the likelihood of windfall profits under such a system?

If windfall profits are defined as the profits from having been allocated free allowances in excess of the economic harm imposed by the imposition of a GHG program,[13] then, under SCE's proposal for allowance allocation, no entity would receive any windfall profit. This is because

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[13] The term "windfall profits" has been used in describing the experience of some in the European Union's ("EU's") GHG program.

only those entities experiencing economic harm that are unable to pass on the harm would be eligible to receive allowances, and the number of allowances available will only be enough to partially mitigate the economic harm, thus providing no windfall profit to any entity receiving allowances.

h. How would such a system prevent windfall profits?

See response to part (g) above.

34. If you recommend allocation of allowances to retail providers, followed by an auction to deliverer/first-sellers, how would such an auction be administered? What kinds of issues would such a system raise?

If retail providers are allocated allowances as part of California's GHG reduction program, then such LSEs' allowances should be sold within a specified period and pursued at fair market value. Further, such allowances should be sold to LSE-owned and merchant generation on a non-discriminatory basis. An auction mechanism could be developed to accomplish these objectives. If developed, that auction mechanism should be run with State oversight authority, accompanied by local boards of customer owned utilities.

G. Responses Regarding Relationship to Other Sectors Under AB 32 in California

35. Would GHG emissions allowances created under a deliverer/first-seller compliance regime in the electricity sector be compatible for trading with other sectors in the California economy, assuming a multi-sector cap-and-trade system? How?

Yes. Allowances should be created based on a common measure of GHG emissions, such as metric tons of CO_2 equivalent. If a common definition of allowances for GHG reduction is used, and every participating sector has ample measurement and verification protocols, then a

First Seller (or a load-based cap) allowance should be tradable with other sectors in California's economy, assuming a multi-sector cap-and-trade system.

H. Responses Regarding Relationship to a Multi-State System Such as the Western Regional Climate Action Initiative

36. Compare and contrast the ability of a deliverer/first-seller and a load-based approach to avoid double-counting of emissions between states.

A First Seller approach is a source-based approach for in-state generation. As a result, any exported native California generation will have its emissions reported at the point of generation. Beyond the certainty that these emissions are being reported, there is no distinction between the two approaches insofar as interstate double counting is concerned.

Imports into California, which are accounted for by the exporting State's cap, will also be reported by the First Seller to the CARB under a First Seller approach. It will thus be up to the CARB to determine whether to include the emissions from such energy generation within California's cap. However, if an exporting state is counting these emissions (*e.g.*, under its own First Seller protocol), it should be unnecessary for California to account for these emissions as well. The integrity of any GHG controls program will be compromised if emissions are double-counted by multiple regulatory authorities.

37. How should exports from California be handled under a deliverer/first-seller approach? Would the proper treatment of exports depend on whether the receiving state has a cap-and-trade system? If so, how?

All of California's native generation will be reported at the source under a First Seller approach and will thus be included in California's cap. The decision of whether to include imports in another state's cap will have to be made by those other states. As noted above, the certainty that the First Seller approach presents regarding the accurate reporting of emissions should reduce the tendency for double counting emissions.

38. If some states in the region adopt a source-based system (or a load-based system which also regulates exports), how would the State of California verify the true source of imports in order to avoid double-regulation of power imported from other capped states?

The CARB staff protocol and the Staff Report outline means by which to measure emissions from imported energy. Because California has an interest in the accuracy of emissions reporting, and accuracy is greater under the First Seller system, if another state has a source-based cap, California can be confident that the emissions from energy imported from that state have been included under the exporting state's cap. If, on the other hand, the other state has a load-based cap, California will need to be assured that the emissions from exported energy are included under the native state's cap before excluding such imports from the California cap.

39. How would a deliverer/first-seller approach function relative to an Oregon load-based system (as currently proposed by Oregon)?

The difficult job of coordinating a load-based cap with a First Seller approach rests on the state implementing the load-based cap. Because of the structure of the First Seller approach, the state implementing that approach will be assured that all native generation is being reported at the source and, thus, included under the domestic state cap. The state importing electricity, however, will need to ensure that emissions from the imported energy were reported and included under the exporting state's cap, because it will have no way of independently knowing whether the emissions from that energy were already accounted for.

As such, California can be more confident that emissions are accounted for if it imports resources from a state that is also using a First Seller approach.

I. Responses Regarding Interaction with Potential Federal Regulation

40. How easily could a deliverer/first-seller approach scale or link to multi-state, national, or international programs?

To meet its obligations under the Kyoto Protocol, the EU requires each member country to submit a National Allocation Plan that sets an emissions cap for each individual emitting unit. Similarly, the Regional Greenhouse Gas Initiative sets the point of regulation on the emitting unit. Because such programs more closely approximate the First Seller approach, adopting a First Seller structure for California will allow easier coordination of California's approach with other regional, national, or international programs.

41. Would one approach (deliverer/first-seller or load-based) be easier to transition into a potential federal GHG regulatory system? If one would be superior in this respect, explain why and what assumption you are making about the likely federal framework.

The First Seller approach would be much easier to transition into a federal GHG scheme based on observations regarding current federal GHG legislation.

First, more than half a dozen GHG cap-and-trade bills have been introduced during the 110th Congress. Many of these bills specify the point of regulation as the emitting unit, (*e.g.*, S 1177 and S 317). A First Seller approach would be more compatible with these federal bills by moving the point of regulation further upstream should a source-based cap-and-trade system be adopted by the federal government, California would likely have to conform (*i.e.*, abandon) any load-based cap it might have created.

Second, there are no federal bills currently pending which specify the load-serving entity as the point of regulation. There are, however, a number of bills (S 485, HR 1590) that would direct the U.S. Environmental Protection Agency ("EPA") to determine which entities are to be regulated. Under those bills, the EPA would have the authority to determine not only which sectors should be included in a cap-and-trade bill, but also the point of regulation within the sector. In theory, the EPA could choose a load-based approach to emissions under these bills. However, there is no precedent for this approach as the EPA has historically regulated emissions based on the emitting unit.

Third, none of the pending federal bills address preemption. This means that if California goes against the federal tide, it could face a situation in which its regulated entities need to comply with both a federal GHG program and a separate state GHG program. This outcome would add a further layer of complexity and cost to California's GHG regulation and could be a basis for claims of federal preemption.

Fourth, other countries have already experienced the problem of choosing the wrong approach. The closest example of the difficulty of transitioning from a load-based to a First Seller or source-based approach is found in the United Kingdom's ("UK") program. The UK had a load-based program before the development of the EU-ETS. In order to coordinate with the EU-ETS, the UK had to delay its participation with the EU-ETS to provide an opportunity to close out its domestic load-based program. The UK Department of Economics, Food and Rural Affairs had to close out all previous allocation and reporting mechanisms and develop completely new source-based methods to coordinate with the EU-ETS. It is unlikely that California would have the option of delaying participation in a federal U.S. program. As such, the transition from a load-based program to a federal source based program would likely be far more difficult.

42. What are the merits of the deliverer/first-seller proposal as a model for other governments' efforts, particularly the national level?

The First Seller approach more closely follows the successful sulfur dioxide ("SO_2") program established under the Clean Air Act. This program reduced SO_2 emissions by 50 percent. Businesses, government, and the public have had almost 20 years to understand how the SO2 program works, and are more likely to accept a GHG program that is similarly structured.

J. **Responses to Request for Legal Briefing**

In response to each question in this section, cite relevant case law and/or FERC rules or regulations, and provide analysis.

Federal Power Act

43. Would the Federal Power Act preempt adoptions of the deliverer/first-seller approach? Why or why not? Does it make any difference that the federal government has not issued any regulations in this specific area?

The Federal Power Act's preemptive force could be implicated to the extent a reviewing court finds that California's GHG regulations cross the fundamental jurisdictional line granting FERC authority over the rates, terms, and conditions of wholesale transactions. Under current law, however, there is no definitive answer to the question of whether a First Seller approach will be deemed to have crossed that line.

As the CPUC itself has recognized, it has "obvious authority" with regard to procurement practices.[14] It has this authority because FERC itself stated, "a state may choose to require a utility . . . to purchase electricity from the supplier of a particular type of resource."[15] Less legally obvious is whether California can impose a First Seller approach to GHG regulation that places demands on exempt wholesale generators. The legal ambiguity over this approach exists because no reviewing body has spoken to this issue. SCE has not found any cases opining upon whether GHG regulation over contacts with California through an energy transaction fall within FERC's jurisdiction over rates, terms, and conditions of wholesale service.

Nevertheless, various factors could lead a court reviewing the question of whether the First Seller approach is a preempted and impermissible state regulation of wholesale transactions subject to FERC jurisdiction, to conclude that the First Seller approach is not preempted.

Most notably, FERC and a reviewing court have affirmatively forsworn any authority to consider environmental issues when reviewing wholesale rates.[16] This means that regardless of whether a First Seller approach or a load-based approach is used in California, because such regulations deal with environmental concerns not addressed by Congress—and FERC is still the final decision maker on matters within its jurisdiction—either approach may be found to be immune from preemption by the Federal Power Act.[17]

44. For purposes of your legal analysis of the previous question, would your opinion differ if the deliverer/first-seller were the reporting entity only and not also the point of regulation? Why or why not?

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[14] Decision No. 06-02-032 at 18.

[15] *See also* S. Cal. Edison Co., 70 FERC ¶61,215 at 61,676 (1995).

[16] Grand Council of the Crees (of Quebec) v. FERC, 198 F. 3d 950, 956-57 (D.C. Cir. 2000).

[17] *See also* Small Power Production and Cogeneration Facilities – Environmental Findings, 10 FERC 961, 314 at 61, 632 (1980).

No. It is likely that the legal review of a structure requiring reporting from an entity will be subject to the same Federal Power Act preemption analysis as a structure requiring regulation of that same entity. This is likely because the assertion of any jurisdiction over the entity is what a reviewing court would be assessing as a possible violation of the Federal Power Act.

45. Could the deliverer/first-seller approach be designed or implemented in a way that would avoid or lessen problems under the Federal Power Act? If so, how?

SCE does not have any suggestions on this issue at this time.

46. Compare Federal Power Act issues under a deliverer/first-seller approach and a load-based approach.

To the extent that California's GHG regulation seeks to regulate imported energy, the Federal Power Act's preemption analysis will be the same under both approaches.

47. If you conclude that Federal Power Act preemption would be a problem, could FERC action (*e.g.*, approval of a CAISO tariff rule) ameliorate this problem? If so, what specifically would FERC do? Could FERC ameliorate any Federal Power Act concerns relating to publicly-owned utilities?

For the reasons set forth above, the First Seller approach may not be subject to Federal Power Act concerns. While FERC action might be able to mitigate Federal Power Act concerns, SCE cautions the CPUC to consider that at least one court has ruled pressure from a state to request FERC tariff action has been viewed negatively.[18]

Dormant Commerce Clause

48. Does the deliverer/first-seller approach raise problems under the dormant Commerce Clause?

The First Seller approach does not seem to raise any different dormant Commerce Clause issues than would be raised under a load-based approach. Under either approach, a reviewing court will examine three general questions: a) whether the state law discriminates against interstate commerce or in favor of local state interests;[19] b) whether the burden from a state law on interstate commerce exceeds the law's benefits;[20] and c) whether a state is attempting to regulate conduct occurring outside of its borders.[21]

It does not appear that either approach poses a greater or lesser constitutional challenge with regard to these three tests. Both approaches, on their face, appear to treat commerce from within the state the same as commerce from outside of the state. Both approaches also impose some, but not limitless, burdens on interstate commerce. Both approaches can describe the same benefit as justifying the burden. Lastly, both approaches seek to prevent "leakage" by dictating the terms on which energy generated out of state can be imported into California.

With regard to the third point, the CPUC has stated, "A load based GHG emissions cap requirement . . . does not control the conduct of out-of-state electric generators engaging in transactions which take place wholly outside California."[22] This analysis glosses over the fact that the First Seller proposal applies to out-of-state generators only to the extent their power crosses California's border and is consumed within the state. By regulating the California transaction, not the out-of-state generator, a First Seller approach may be able to avoid the Commerce Clause issue previously identified by the CPUC.

Continued from the previous page
[18] *See, e.g.*, Massachusetts Dept. of Pub. Util. v. United States, 729 F.2d 886, 888 (1984).
[19] Granholm v. Heald, 544 U.S. 460, 476 (2005).
[20] Pike v. Bruce Church, 397 U.S. 137 (1970).
[21] Healy v. Beer Inst., 491 U.S. 324.
[22] D.06-02-032 at 221.

49. Could the deliverer/first-seller approach be designed or implemented in a way that would avoid or lessen problems under the dormant Commerce Clause? If so, how?

As noted above, there are no special Commerce Clause issues that arise solely because of the choice of a First Seller approach. To the extent the CPUC wishes to avoid a challenge to implementation of any proposal on the ground that it may be an impermissible attempt to regulate conduct wholly occurring outside of California, it should implement a program that only requires regulation of transactions with a direct California connection. The closer a transaction's relationship to California, the less persuasive an argument regarding impermissible attempts to regulate beyond California's borders may be to a reviewing court.

50. Are issues under the dormant Commerce Clause more or less serious under a deliverer/first-seller approach compared with a load-based approach? Explain.

See response to Question No. 49.

51. The Market Advisory Committee report suggests that the value of GHG emission allowances "can be used to fund innovative emission reduction technologies and to focus pollution-reduction efforts in low-income and minority communities" or "can be utilized to provide transition assistance for workers and industries subject to strong market pressures from competitors operating in jurisdictions that lack similar caps on greenhouse gas emissions" (Market Advisory Committee report, at iv – v) or "should be directed to investments in end-use efficiency improvements" (*Id.*, at 54). Would these uses raise problems under the dormant Commerce Clause? Would these problems be more or less serious under a deliverer/first-seller approach compared with a load-based approach?

As noted earlier, if a reviewing court finds that the use of funds is consistent with AB 32 and public policy purposes, and that it does not place an inappropriate burden on interstate commerce, then the use may be deemed constitutional. If a court finds otherwise, then the use of funds for such purposes will not be sustained. This analysis applies regardless of whether the funds come from a load-based or a First Seller approach.

Responses to Questions Regarding Authority to Auction

52. Does ARB have the authority, under AB 32 or any other statute, to auction allowances to emit greenhouse gases? Explain.

There is no explicit mention of auctioning of allowances in AB 32. However, to the extent a court is inclined to broadly interpret the language of that statute, it will find phrases that require CARB to do things such as identify and make recommendations on, among other things, "market-based compliance mechanisms . . . that the state board finds are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020." The legislation defines such "market-based compliance mechanisms" to include "greenhouse gas emissions exchanges, banking, credits, and other transactions, governed by rules and protocols established by the state board."

Other Legal Issues

53. Are there any other legal issues that the Public Utilities Commission and the Energy Commission should consider in deciding whether to investigate the deliverer/first-seller approach further? Explain.

SCE has none at this time.

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August 6, 2007

Appendix A

First Seller Matrix

Type of First Seller	Type of Transaction	Who is The First Seller	Source Of Electricity	Basis For Emissions Info
In-state generator	IOU-owned Generator	IOU	specific generator	CARB repository of in-state facilities
	IPP-owned Generator	IPP	specific generator	CARB repository of in-state facilities
	POU-owned Generator	POU	specific generator	CARB repository of in-state facilities
	QF/Cogen Facility/DG	QF/Cogen Facility/DG	specific generator	CARB repository of in-state facilities
	Federal Agency Owned Generator	Federal Agency	specific generator	CARB repository of in-state facilities
Imports	CA IOU-scheduled import	IOU *	specific generator	CARB repository of out-of-state facilities
			system purchase	Calcs based on marginal emissions rate in each BA **
	CA POU-scheduled import	POU *	specific generator	CARB repository of out-of-state facilities
			system purchase	Calcs based on marginal emissions rate in each BA **
	CA Marketer/Broker scheduled import	Marketer/Broker *	specific generator	CARB repository of out-of-state facilities
			system purchase	Calcs based on marginal emissions rate in each BA **
	Federal Agency scheduled import	Federal Agency *	specific generator	CARB repository of out-of-state facilities
			system purchase	Calcs based on marginal emissions rate in each BA **

* - Identified as the Purchasing Selling Entity at the point of contact with a California Balancing Authority on the E-tag
** - BA = Balancing Authority

First Seller Matrix

Type of First Seller	Type of Transaction	Who is The First Seller	Source Of Electricity	Basis For Emissions Info
In-state generator	SCE Operates Mountainview to serve load	SCE	specific generator	CARB repository of in-state facilities for Mountainview
	Long Beach Generation (owned by NRG) contracts with SCE	NRG	specific generator	CARB repository of in-state facilities for Long Beach
	SMUD sells Rancho Seco Output to CAISO	SMUD	specific generator	CARB repository of in-state facilities for Rancho Seco
Imports	SCE imports at CAISO Balancing Authority boundary from APS Balancing Authority	SCE *	system purchase	Calcs based on marginal emissions rate in each BA **
	J.Aron (Marketer) Imports from BPA at the CAISO Balancing Authority boundary and sells into CAISO Market	J. Aron *	system purchase	system purchase
	APS sells output from Cholla Power Plant to SDG&E at the CAISO Balancing Authority Boundary	SDG&E *	specific generator	CARB repository of out-of-state facilities for Cholla
	ESP or CCA procures unspecified energy from PowerEx from an out-of-state resource for delivery within the CAISO	PowerEx *	system purchase	system purchase

* - Identified as the Purchasing Selling Entity at the point of contact with a California Balancing Authority on the E-tag
** - BA = Balancing Authority

1 EXAMPLE E-TAG DEFINING FIRST SELLER (Import)

Physical Path

CA	TP	PSE	POR	POD	Sched Entity
BPAT		PSE 1	Source: Benton		
	BPAT	PSE 1	Benton	JohnDay	BPAT
	BPAT	PSE 2	JohnDay	Malin	BPAT
	LDWP	PSE 3	Malin	Sylmar	CISO
	LDWP	PSE 3	Sylmar	LASystem	LDWP
LDWP		PSE 3	Sink: LA System		

Test 1 - Does the transaction source outside of California and sink inside California?

Yes - Source is BPAT and Sink is LDWP

Test 2 - Identify the PSE at the point of contact with a California Balancing Authority.

Occurs where the Scheduling entity is CISO

PSE 3 is therefore the First Seller

2 EXAMPLE E-TAG DEFINING FIRST SELLER (Wheel-Through)

Physical Path

CA	TP	PSE	POR	POD	Sched Entity
BPAT		PSE 1	Source: Benton		
	BPAT	PSE 1	Benton	JohnDay	BPAT
	BPAT	PSE 1	JohnDay	Malin	BPAT
	CISO	PSE 2	Malin	NP15	CISO
	CISO	PSE 2	NP15	SP15	CISO
	CISO	PSE 2	SP15	PVWEST	CISO
	CISO	PSE 2	PVWEST	PALOVERDE500	CISO
	SRP	PSE 2	PALOVERDE500	HARQUAHALA	SRP
SRP		PSE 2	Sink: HARQUAHALA		

Test 1 - Does the transaction source outside of California and sink inside California?

No - Source is BPAT and Sink is SRP

Test 2 - Identify the PSE at the point of contact with a California Balancing Authority.

N/A

3 EXAMPLE E-TAG DEFINING FIRST SELLER (Wheel-Through followed by Import)

Physical Path

CA	TP	PSE	POR	POD	Sched Entity
BPAT		PSE 1	Source: GHPUD		
	BPAT	PSE 1	GHPUD	JohnDay	BPAT
	SPSEI	PSE 1	JOHNDAY	Malin	BPAT
	LDWP	PSE 2	Malin	Sylmar	CISO
	LDWP	PSE3	Sylmar	Mead	LDWP
	LDWP	PSE3	Mead	Mead	WALC
	LDWP	PSE4	Mead	SP15	CISO
		PSE4	Sink: SP15		
CISO					

Test 1 - Does the transaction source outside of California and sink inside California?

Yes - Source is BPAT and Sink is CISO

Test 2 - Identify the PSE at the point of contact with a California Balancing Authority.

While this transaction enters a California Balancing Authority twice (once at Sylmar and again at SP15) the second contact should determine the first seller as the first is effectively a wheel-through. Therefore, PSE 4 is the first seller.

First Seller for Imports Methodology

Any transaction crossing control area boundaries must be accompanied by a NERC E-tag. This E-tag contains, among other things, a description of the physical path and the entities responsible for the power at certain points along the transactional physical path. This information can be used to determine when energy has been imported into California and identify the entity that is responsible under the First Seller approach.

Within the E-tag, a few pieces of existing information would be used and a few simple rules applied.

Rules:

1) In the section of the E-tag markets "Physical Path", evaluate the column marked CA (Control Area). If the source control area (the first control area listed in the table) is outside of California and the sink control area (the last control area listed in the table) is in California, then go to rule 2. If this test is not true then the transaction is a flow-through transaction and not evaluated for GHG impact under AB 32
2) Utilize the Sched Entities (Scheduling Entities) column to identify the final time the transaction enters California. On this row, the column marked PSE (Purchasing Selling Entity) will identify the First Seller.

Note that the entities listed in these columns can be identified from the standardized identifiers utilized by NERC.

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of RESPONSE OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) TO ADMINISTRATIVE LAW JUDGE'S COMMENTS AND LEGAL BRIEFS ON MARKET ADVISORY COMMITTEE REPORT on all parties identified on the attached service list(s). Service was effected by one or more means indicated below:

Transmitting the copies via e-mail to all parties who have provided an e-mail address. First class mail will be used if electronic service cannot be effectuated.

Executed this **6th day of August, 2007**, at Rosemead, California.

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